



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/769,215 | 01/31/2004 | Andreas Koebe | 10543-074 | 7581 |
| 7590 | 02/09/2005 | | EXAMINER | |
| John M. Card BRINKS HOFER GILSON & LIONE P.O. Box 10395 Chicago, IL 60610 | | | LE, JOHN H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2863 | |

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/769,215 | KOEBE ET AL. | |
| | Examiner | Art Unit | |
| | John H Le | 2863 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 10 June 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-14 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>01/31/2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lutz et al. (USP 6,725,136) in view of Giustino (USP 6,550,320).

Regarding claim 1, Lutz et al. teach a method of detecting the tire pressure loss in a vehicle (Col.2, lines 53-55), comprising: detecting angular speed variations of one or more wheels of the vehicle over a specified number of wheel revolutions (e.g. Col.3, lines 30-32); analyzing the frequency of the angular speed variations (Col.3, lines 45-64); mapping a peak frequency (highest frequency) from angular domain to time domain (Col.4, lines 60-62, Col.9, lines 54-56); determining if the frequency changes (Col.3, lines 5-6) over the time domain (Col.9, lines 54-56); relating frequency changes to pressure loss in the tire; and indicating the pressure loss to the driver of the vehicle (Col.2, lines 53-55, Col.3, lines 5-6, Col.4, lines 1-14).

Regarding claim 2, Lutz et al. teach determining if the frequency shifts from a higher frequency to a lower frequency at a given vehicle speed (Col.4, lines 48-65).

Regarding claim 12, Lutz et al. teach the detecting includes detecting the angular speed variations of four wheels (Col.2, lines 20-22).

Regarding claim 13, Lutz et al. teach the indicating includes indicating pressure loss in one or more tires of four tires mounted on the respective wheels (Col.2, lines 53-55).

Lutz et al. fail to disclose eliminating pole pitch errors in a single angular spectrum.

Giustino discloses eliminating pole pitch errors in a single angular spectrum (Col.10, lines 3-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform eliminating pole pitch errors in a single angular spectrum as taught by Giustino in a method of detecting the tire pressure loss in a vehicle of Lutz et al. for the purpose of providing system and method for predicting the forces generated in the tire contact patch from measurements of tire deformations, including separating skewed forces, e.g., lateral force and circumferential torque, using measurements of tire deformations (Giustino, Col.2, lines 16-22).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lutz et al. (USP 6,725,136) in view of Giustino (USP 6,550,320) as applied to claim 1 above, and further in view of Asano et al. (USP 5,588,721).

Regarding claim 3, the combination of Lutz et al. and Giustino discussed supra, disclose the claimed invention except detecting the vibration with an ABS encoder.

Asano et al. teach detecting the vibration (Col.5, lines 54-60) with an ABS encoder (Col.17, lines 60-63).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform detecting the vibration with an ABS encoder as taught by Asano et al. in a method of detecting the tire pressure loss in a vehicle of Lutz et al. in view of Giustino for the purpose of providing an anti-lock brake controlling apparatus comprising detecting means for detecting a vibration characteristic of a wheel speed and controlling means for controlling a mean braking force acting on a wheel on the basis of the detected vibration characteristic such that a slip ratio is not larger than a value at which a coefficient of friction between a tire and a road surface substantially reaches a peak value (Asano et al., Col.2, lines 51-67).

4. Claims 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lutz et al. (USP 6,725,136) in view of Giustino (USP 6,550,320) as applied to claim 1 above, and further in view of Jones (USP 4,574,267).

Regarding claim 4, the combination of Lutz et al. and Giustino discussed supra, disclose the claimed invention except averaging a series of continuous single frequency spectra.

Jones teaches averaging a series of continuous single frequency spectra (Fig.4, Col.5, lines 17-27).

Regarding claim 5, Jones teaches curve fitting the averaged frequency spectrum in the angular domain (Col.11, lines 32-36, 50-55).

Regarding claim 6, Jones teaches calculating the peak frequency from the averaged frequency spectrum (Col.11, lines 50-55).

Regarding claim 7, Jones teaches making long-term adjustments by filtering a series of peak frequencies (Fig.4).

Regarding claim 8, Jones teaches detecting shifts in the peak frequency (Col.1, line 61-Col.2, line 6).

Regarding claim 9, Jones teaches the indicating includes presenting tire pressure loss information on a display viewed by the driver of the vehicle (Col.3, lines 30-41).

Regarding claim 10-11, Jones teaches employing Discrete Fast Fourier Transforms for transforming a discrete sampled angular domain to an angular frequency domain (e.g. Col.5, lines 7-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include averaging a series of continuous single frequency spectra as taught by Jones in a method of detecting the tire pressure loss in a vehicle of Lutz et al. in view of Giustino for the purpose of providing a system for automatically monitoring tire inflation pressures (Jones, Col.1, lines 61-62).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lutz et al. (USP 6,725,136) in view of Giustino (USP 6,550,320) as applied to claim 1 above, and further in view of Jones (USP 5,541,573).

Regarding claim 14, the combination of Lutz et al. and Giustino discussed supra, disclose the claimed invention except detecting occurs at vehicle speeds of at least 40 kph.

Jones discloses detecting occurs at vehicle speeds of at least 40 kph (Col.7, lines 4-10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include detecting occurs at vehicle speeds of at least 40 kph as taught by Jones in a method of detecting the tire pressure loss in a vehicle of Lutz et al. in view of Giustino for the purpose of providing a method of detecting a deflated tire on a vehicle which accommodates the above changes, avoiding false signals and detecting deflation for substantially all the time when the vehicle is running (Jones, Col.1, lines 55-59).

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H Le whose telephone number is 571-272-2275. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John H. Le

Patent Examiner-Group 2863

February 3, 2005



John Barlow
Supervisory Patent Examiner
Technology Center 2800